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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/597,296	10/07/2008	Robert James Nash	2245.075	8910

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EXAMINER	
THOMAS, TIMOTHY P	
ART UNIT	PAPER NUMBER
1628	
MAIL DATE	DELIVERY MODE
07/29/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/597,296	NASH ET AL.	
	Examiner	Art Unit	
	TIMOTHY P. THOMAS	1628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 May 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *43-62* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *43-62* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 July 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

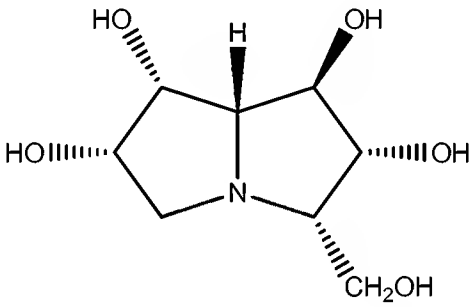
1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *11/16/2009*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Group I, claims 43-60 and 61-62 (in part) in the reply filed on 5/27/2010 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

2. Applicant's election of (i) 3,7-diepi-casuarine as the Th1-activating alkaloid specie, which has the structure:



3,7-diepi-casuarine ;

(ii) "protein(s) or peptide(s) and "viral particles" as antigen species; (iii) "a type 2 adjuvant (such as Alum and/or MF59)" as an additional component specie's; and (iv) "subcutaneous injection" as the administration route specie; in the reply filed on 5/27/2010 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Priority

3. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in UK on 1/21/2004. It is noted, however, that applicant has not filed a certified copy of the 0401239.9 application as required by 35 U.S.C. 119(b).

Oath/Declaration

4. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:
Non-initialed and/or non-dated alterations have been made to the oath or declaration. See 37 CFR 1.52(c).

Specification

5. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

(a) TITLE OF THE INVENTION.
(b) CROSS-REFERENCE TO RELATED APPLICATIONS.
(c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
(d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
(e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.

(f) BACKGROUND OF THE INVENTION.
(1) Field of the Invention.
(2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
(g) BRIEF SUMMARY OF THE INVENTION.
(h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
(i) DETAILED DESCRIPTION OF THE INVENTION.
(j) CLAIM OR CLAIMS (commencing on a separate sheet).
(k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
(l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

6. The disclosure is objected to because of the following informalities: There is no section (h) Brief Description of the Drawings.

Appropriate correction is required.

7. The use of the trademarks Provax™, ISCOM®, ISCOMATRIC®, and Alhydrogel™ has been noted in this application. They should be capitalized wherever they appear and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

8. The disclosure is objected to because of the following informalities: "defence" at p. 2, line 29, appears to be a misspelling of "defense".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

9. Claims 43-62 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claims 43-60, claims 43, 59 and 60 recite a compound of formula or a pharmaceutically acceptable salt or derivative thereof. It is not clear what are the metes and bounds of “derivatives” of the general formula of claim 43, or "derivatives” of the specific compound recited in claims 59 and 60. It is noted that the term derivative as applied to the alkaloids of the invention are disclosed to define alkaloids which are obtained or obtainable by chemical derivatization of the parent alkaloids of the invention (p. 19, lines 4-6); taken with the disclaimer that the terms are intended to have the defined meanings in addition to any broader or narrower meanings the terms might enjoy in the art (p. 16, lines 34-35), renders the broadest meaning to the term derivative. A review of the compounds and formulae disclosed did not render clear the meaning of the term. It is noted that a series of preferred general formulae and specific compound formulae are disclosed at p. 21-line 15 through p. 27; each of these also discloses the language “or derivative thereof”, without making clear which compounds would be derivatives of any of these formulae.

Since the chemical derivation definition encompasses nearly all known compounds, ranging from carbon dioxide (derivation via incineration of the parent compound in oxygen, a chemical derivatization process) to very large biological molecules (synthesized by plants via a chemical derivatization process, starting with

carbon dioxide), this renders the scope of derivatives recited in claims 43, 59 and 60 as indefinite. It is, therefore, not clear which compounds are within the scope of and which compounds are excluded by the "derivatives" language.

With respect to claims 61-62, it is not clear from the disclosure which compounds have the recited property of a Th-1-activating alkaloid that can be used in an amount effective to polarize an immune response to an antigen from type 2 towards type 1, recited by these claims. The specification provides evidence for the elected compound having the recited property; however, of the myriads of other compounds disclosed, it is not clear which compounds have the recited property and which are outside of the scope of claims 61-62.

Regarding claims 47, 48, 51 and 52, the phrase "for example (e.g.)" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

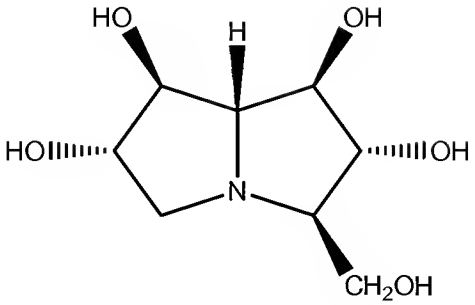
1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

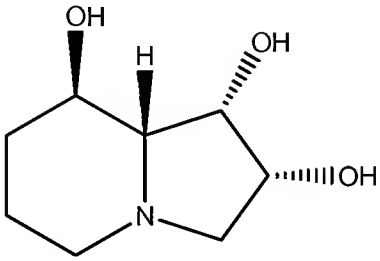
13. Claims 43-56 and 59-62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watson et al. ("Polyhydroxylated alkaloids -- natural occurrence and therapeutic applications"; 2001; Phytochemistry; 56: 265-295: IDS reference CD); in view of Clements et al. ("The global impact of vaccines containing aluminium adjuvants"; 2002; Vaccine 20: S24-S33).

Watson teaches a series of polyhydroxylated alkaloids, which include the compounds



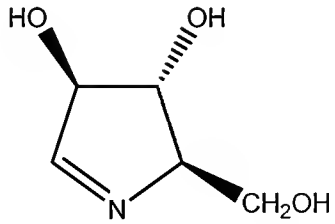
Casuarine

(p. 274, Figure 5, 2nd row);



Swainsonine

(p. 275, Figure 6, 1st row); and



Nectrisine

(p. 273, Figure 2, 1st row). In a section entitled "Immune Stimulants", Watson teaches that swainsonine was found to stimulate cell proliferation of murine bone marrow following haematological injuries; the possibility that swainsonine could confer protection against the cytotoxic effects of both cell cycle-specific and –non-specific cytotoxic anticancer agents was first examined in a murine model system; the results

indicated that the intraperitoneal administration of swainsonine decreased the lethality of methotrexate, 5-fluorouracil, cyclophosphamide and doxorubicin in non-tumour-bearing mice, responses critically dependent on the dose, sequence and timing of swainsonine administration (p. 283, 2nd paragraph); in an AIDS therapy drug AZT, swainsonine administered by intraperitoneal injection increased both total bone marrow cellularity and the number of circulating white blood cells in mice treated with doses of AZT that typically lead to severe myelosuppression, which is the major dose-limiting feature in chemotherapeutic regimens for AIDS using this drug; in addition, swainsonine protected human myeloid progenitor cells from AZT toxicity in vitro (p. 283, right, 1st paragraph); the possibility exists that swainsonine could be used to accelerate the recovery of bone marrow cellularity and competence following high-dose chemotherapy or autologous bone marrow transplantation, or used as an adjuvant during AZT treatment; thus the complications and increased risk of opportunistic infections associated with the prolonged immune-deficient state in this clinical condition could be minimized and the cure rates of cytoreductive treatment could be significantly improved; this promising therapeutic application of swainsonine is currently being pursued in clinical trials (p. 283, right, 2nd paragraph); nectrisine, which inhibits α-glucosidases in addition to α-mannosidases, has been reported to restore the immune response of immunosuppressed mice (p. 283, right, 3rd paragraph). This article establishes that both swainsonine and nectrisine have the properties of immune stimulants. Considering the structures of these compounds and the related alkaloid, casuarine indicates that nectrisine has the same 5-membered pyrole moiety including the OH and CH2OH

substituents, in the same 3-D arrangement as casuarine, would have lead to an expectation that casuarine would have activity as an immune stimulant. Comparison of swainsonine with nectrisine, shows the common features of the molecules are the 5-membered pyrrole moiety, and three hydroxy groups, with similar distance between the hydroxyl groups. These common molecular features are also present in causuarine. Therefore, one of ordinary skill in the art would have a reasonable expectation that the alkaloid causuarine would also function as an immune stimulant, similar to swainsonine and nectrisine.

Watson does not teach administration a compound with the general formula of claim 43 or the formula depicted in claims 59-60, although, using the broadest reasonable definition for derivative thereof, each of swainsonine and nectrisine would fall within the scope of derivatives of the elected compound, and derivatives of casuarine. Watson does not teach administering a vaccine, such as the elected combination of protein(s) or peptide(s) and viral particles; nor does the article teach administration of an auxiliary adjuvant, including the elected type 3 adjuvant, of alum or MF59.

Clements teaches immunization against childhood vaccine-preventable diseases has arguably had the greatest impact on the health of children of any public health intervention; many vaccines have contained aluminium-based adjuvants, which have played a vital role in enabling the basic vaccines to be used effectively; while global supply is fragile, non-aluminum adjuvants could not readily replace aluminium adjuvants; new generation vaccines will probably need new generation adjuvants

(abstract); vaccines are listed in Tables 1-3 (p. S25); with the development of “classical" vaccines was the development of a range of technologies, including adjuvants (p. S25, right, 3rd paragraph), defined as a substance that is used in combination with a specific antigen which produces more immune response than when the antigen is used alone (p. S25, footnote 1); the antitoxin response to tetanus and diphtheria was increased by injecting the two vaccines together with other compounds such as agar, tapioca, lecithin, starch oil, saponins and even breadcrumbs (p. S25, right, 3rd paragraph); desired characteristics for a model antigen are listed in Table 4 (p. S26); actual and candidate adjuvants are highly diverse materials that have in common only their adjuvant properties (p. S26, section 7); in 1826 is was discovered that a suspension of alum-precipitated diphtheria toxoid (DT) had high antigenic properties—greater than those of the toxoid from which it came, alum-adjuvanted vaccines have a long record of safety, although documented local reactions of varying severity have been recorded (p. S26, section 8); diphtheria vaccine is a preparation of diphtheria toxoid, usually available as a preparation adsorbed with aluminium hydroxide or phosphate and often combined with other toxoids or vaccines; this vaccine contains diphtheria proteins (pp. S26-S27, bridging paragraph); pertussis contains whole-cell vaccines and acellular vaccines, adsorbed on aluminum phosphate or aluminium phosphate sulfate, the whole-cell vaccines are killed Bordetella pertussis (p. S29, section 9.3.1, 1st paragraph); acellular vaccines are made from purified antigens of B. pertussis; all the current vaccines contain pertussis toxoid (contains proteins and peptides); antigens may include pertactin, fimbriae 2 and fimbriae 3 (all are proteins; p. S29, section 9.3.1, 1st

paragraph); hepatitis B vaccines are composed of highly purified preparations of surface antigen, a glycoprotein that is a component of the outer envelope of hepatitis B virus (a viral particle) which is combined with an adjuvant, aluminium phosphate or aluminium hydroxide; p. S30, section 9.4.1, 1st paragraph); many vaccines under current development are composed of synthetic, recombinant, or highly purified sub-unit vaccines, considered safer than classical vaccines, bu may be less immunogenic; adjuvant formulations are an attractive approach to enhancing their immune response; they have diverse mechanism of action and will need to be selected for use based on the route of administration and the type of response desired for a given vaccine (p. S32, section 11, 2nd paragraph); new generation vaccines will probably need new generation adjuvants (p. S32, right, 2nd paragraph). With respect to claims 55-56, various doses of antigens are taught in ranges, see for example, the concentration of Hepatitis B surface antigen (HBs Ag), taught at concentrations from 2.5-40 µg/dose (p. S30, section 9.4.1); pertussis toxoid is dosed at 3.2-40 µg/dose, filamentous agglutinin is dosed at 2.5-34.4 µg/dose, pertactin at 1.6-23.4 µg/dose, fimbrae 2 at 0.8-5 µg/dose and fimbriae 3 at µg/dose (p. S29, section 9.3.1).

Clements establishes alum as a known adjuvant, which is used in combination with a variety of known vaccines to increase the effectiveness of the vaccines, and that there is a need for additional adjuvants. This reference establishes the meaning of an adjuvant to result in a greater immune response than when an antigen is used alone. Taken with Watson, the demonstrated increase of immune response when swainsonine or nectrisine is utilized would lead one of skill in the art to expect these compounds to

have activity as adjuvants. Similarly, based on the common structure with casuarine would lead to a similar expectation for this compound possessing adjuvant activity.

It would have been obvious to one of ordinary skill in the art at the time of the instant invention to administer to a subject one of the vaccines taught by Clements, in combination with swainsonine, nectrisine or casuarine, giving the required steps of instant claims 43-44, 49, 51, 53, 55 and 61-62. The motivation would have been the demonstrated immune stimulation of each of swainsonine and nectrisine, which would have been expected to provided the same type of immune activation, which is defined by Clements as being the property of adjuvants; there would have been the expectation of boosting antibody response to the vaccine in the presence of each of these compounds, as occurs with other adjuvants. It would further have been obvious to combine swainsonine, nectrisine or casuarine with alum and to administer these components in combination with any of the vaccines taught by Clements, giving the methods of claims 45-48, 50, 52, 54, 56 and 59-60. With respect to the dose-spared amounts of claims 55-56, the lower end of the ranges of antigen administered by Clements are taken to satisfy this limitation.

It is noted that the language of claim 43, 61 and 62, "polarizing an immune response to an antigen" appears in the preamble and is not given patentable weight. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190

USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

With respect to claims 44, the recited stimulation of expression of IL-12 in vitro in lymphocytes and/or dendritic cells is taken to be a property possessed by the alkaloid compounds recited in the claims, and would be characteristic of swainsonine, nectrisine or casuarine.

It is noted that In re Best (195 USPQ 430) and In re Fitzgerald (205 USPQ 594) discuss the support of rejections wherein the prior art discloses subject matter which there is reason to believe inherently includes functions that are newly cited or is identical to a product instantly claimed. In such a situation the burden is shifted to the applicants to "prove that subject matter shown to be in the prior art does not possess characteristic relied on" (205 USPQ 594, second column, first full paragraph).

14. Claims 43-44, 49, 51, 53, 55 and 59-62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watson et al. (“Polyhydroxylated alkaloids -- natural occurrence and therapeutic applications"; 2001; Phytochemistry; 56: 265-295: IDS reference CD); in view of Clements et al. (“The global impact of vaccines containing aluminium adjuvants”; 2002; Vaccine 20: S24-S33) as applied to claims 43-56 and 59-62 above, and further in view of Bell et al. (“Synthesis of Casuarines [Pentahydroxylated Pyrrolizidines] by Sodium Hydrogen Telluride-Induced Cyclisations of Azidodimesylates”; 1997; Tetrahedron Letters; 38(33): 5869-5872: IDS reference CA)

The teachings of Watson and Clements are outlined above, as are the rationale motivating modification of the references.

Although Watson teaches compounds that fall within the scope of derivatives of the elected compound, 3,7-diepi-casuarine, Watson does not teach the elected compound recited in claims 59-60, and within the scope of all of the instant claims, 3,7-diepi-casuarine.

Bell teaches a wide range of both naturally occurring and synthetic nitrogen analogues of carbohydrates cause inhibition of glycosidases and other enzymes with the potential of controlling individual steps of carbohydrate metabolism; Casuarine the most highly oxygenated bicyclic sugar mimic yet isolated, is a potent inhibitor of glucosidase I, 72% inhibition at μg/mL; causarine may have interest in the study of possivle approaches to the treatment of cancer and AIDS (p. 5869, 1st paragraph); diastereomers of casuarine occurs in African plants used by AIDS patients; diastereomers of casuarine include the elected compound (compound 2, pp. 5869-5870). Based on the fact that this compound is a diastereomer, the elected compound is likely to have similar properties to casuarine, i.e., as an inhibitor of glycosidases. Taken with the teaching of Watson, that clearly teaches nectrisine, inhibits α-glucosidases in addition to α-mannosidases and has been reported to restore the immune response of immunosuppressed mice; comparison of the structures of nectrisine and swainsonine to 3,7-diepi-casuarine would lead to the expectation that the elected compound would also have immune stimulation properties.

It would have been obvious to one of ordinary skill in the art at the time of the instant invention to administer the elected 3,7-diepi-casuarine along with any one of the vaccines taught by Clements, giving the method of the instant claims. The motivation

would have been that the elected compound would have been expected to possess adjuvant activity, providing an increase in antibody response to the vaccine administered.

15. Claims 57-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watson et al. ("Polyhydroxylated alkaloids -- natural occurrence and therapeutic applications"; 2001; Phytochemistry; 56: 265-295: IDS reference CD); in view of Clements et al. ("The global impact of vaccines containing aluminium adjuvants"; 2002; Vaccine 20: S24-S33) as applied to claims 43-56 and 59-62 above, and further in view of Slovin et al. ("Peptide and carbohydrate vaccines in relapsed prostate cancer: immunogenicity of synthetic vaccines in man—clinical trials at Memorial Sloan-Kettering Cancer Center"; 1999; Semin. Oncol; 26(4): 448-54; PubMed abstract; PMID: 10482187)

The teaching of Watson and Clements have been outlined above, along with rationale for modifying the teachings.

Watson does not teach the elected route of administration, subcutaneously, recited in the instant claims.

Slovin teaches men with rising prostate-specific antigen (PSA) levels after primary therapies such as prostatectomy or radiotherapy represent a unique groups for whom no standard treatment option exists; a series of phase I monovalent carbohydrate and glycoprotein-conjugate vaccine trials using the patients' immune system to generate an antitumor response if the focus of the report; these synthetic vaccines are conjugated to keyhole limpet hemocyanin (KLH) and given with the immunologic

adjuvant QS21 as five subcutaneous vaccines over 26 weeks; all patients generated specific high-titer immunoglobulin M (IgM) and/or IgG antibodies.

It would have been obvious to one of ordinary skill in the art at the time of the instant invention to administer swainsonine, nectrisine or casuarine in place of the QS21, via subcutaneous vaccines, giving the method of the instant claims. The motivation would have been the expectation of these compounds to provide adjuvant activity in place of QS21 based on the immune stimulatory activity of swainsonine and nectrisine and the structural similarity of casuarine.

Conclusion

16. No claim is allowed.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to TIMOTHY P. THOMAS whose telephone number is (571) 272-8994. The examiner can normally be reached on Monday-Thursday 6:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sreenivasan Padmanabhan can be reached on (571) 272-0629. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Timothy P Thomas/
Examiner, Art Unit 1628